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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MOORTHY, ARAVIND K

ART UNIT

PAPER NUMBER

2131

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/727,300

Applicant(s)

POMET ET AL.

Examiner

Aravind K. Moorthy

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This is in response to the applicant's amendment on 26 May 2005.
2. Claims 12-49 are pending in the application.
3. Claims 12-49 have been rejected.
4. Claims 1-11 have been cancelled.

Response to Arguments

5. Applicant's arguments filed 26 May 2005 have been fully considered but they are not persuasive.

On page 13, the applicant argues that Miyazaki et al makes no reference to the bus comprising a data bus and a transmission line as recited in the claimed invention.

The examiner respectfully disagrees. Miyazaki et al teaches a data bus as shown in figure 1. Miyazaki et al also teaches a transmission line shown in figure 1 as well (i.e. the input/output line).

On page 14, the applicant argues that Miyazaki et al fails to disclose a data encryption/decryption cell as recited in the claimed invention.

The examiner respectfully disagrees. Miyazaki et al teaches an encryption/decryption processing unit that meets the claim limitation of the encryption/decryption cell as recited in the claimed invention.

On page 14, the applicant argues that Miyazaki et al fails to disclose that a transmission line is connected between one of the peripheral devices and the CPU for providing a random signal thereto that is synchronous with the clock signal.

The examiner respectfully disagrees. In figure 1, Miyazaki et al teaches a transmission line that is connected between one of the peripheral devices and the CPU. Miyazaki et al teaches a random number signal that is generated and is synchronous with the clock signal.

On pages 14-15, the applicant argues that Miyazaki et al fails to disclose that the CPU and one of the peripheral devices each comprises a data encryption/decryption cell connected to the data bus and to the transmission line for generating a same current secret key at each clock cycle based upon the random signal, as recited in the claimed invention.

The examiner respectfully disagrees. Miyazaki et al teaches an encryption/decryption processing unit that is connected to the data bus and to the transmission line for generating a same current secret key at each clock cycle based upon the random signal, as recited in the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 12-16, 18, 19, 21-26, 28, 29, 31-35, 37, 38, 40-44, 46, 47 and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyazaki et al U.S. Patent No. 6,714,648 B2.

As to claims 12, 25, 34 and 42, Miyazaki et al discloses an electronic device comprising:

a central processing unit [column 7 line 58 to column 8 line 19];

at least one peripheral device [column 7 line 58 to column 8 line 19];

a data bus connected between the at least one peripheral device and the central processing unit through which data travels at a rate of a clock signal [column 7 line 58 to column 8 line 19]; and

a transmission line connected between the at least one peripheral device and the central processing unit for providing a random signal thereto that is synchronous with the clock signal [column 7 line 58 to column 8 line 19];

the central processing unit and the at least one peripheral device each comprising a data encryption/decryption cell connected to the data bus and to the transmission line for generating a same current secret key at each clock cycle based upon the random signal [column 8 line 62 to column 9 line 21].

As to claims 13 and 43, Miyazaki et al discloses that the at least one peripheral device comprises a memory [column 7 line 58 to column 8 line 19].

As to claim 14, Miyazaki et al discloses that the same current secret key changes at each successive clock cycle [column 8 line 62 to column 9 line 21].

As to claims 15, 26, 35 and 44, Miyazaki et al discloses that each data encryption/decryption cell comprises a shift register having an input for receiving the random signal and an input for receiving the clock signal, and an output for providing the same current secret key at each clock cycle [column 9, lines 45-57].

As to claim 16, Miyazaki et al discloses that the shift register comprises a feedback type shift register [column 7 line 58 to column 8 line 19].

As to claims 18, 28, 37 and 46, Miyazaki et al discloses that each data encryption/decryption cell comprises:

an encryption module having an input for receiving the secret key and an input for receiving the data to be transmitted, and an output for providing encrypted data [column 9 line 22 to column 10 line 33]; and

a decryption module having an input for receiving the secret key and an input for receiving the data, and an output for providing decrypted data [column 9 line 22 to column 10 line 33].

As to claims 19, 29, 38 and 47, Miyazaki et al discloses that the data encryption/decryption cell of the central processing unit further comprises a conditional circuit for applying the secret key or a neutral key to the encryption and decryption modules based upon an encryption enabling signal [column 14, lines 44-62].

As to claims 21, 31 and 40, Miyazaki et al discloses that the encryption module and the decryption module each operate based upon a same mathematical function [column 9 line 22 to column 10 line 33].

As to claims 22 and 32, Miyazaki et al discloses that a random signal generator connected to the transmission line for generating the random signal that is synchronous with the clock signal [column 15, lines 6-25]. Miyazaki et al suggests that the random signal generator further comprises a consumption masking circuit [column 15, lines 6-25].

As to claims 23, 33 and 41, Miyazaki et al discloses that the random signal generator comprises a D-type flip-flop having an input for receiving a random binary signal and an input for receiving the clock signal and an output for providing the random signal [column 7 line 58 to column 8 line 19]. Miyazaki et al discloses that the consumption masking circuit is connected

Art Unit: 2131

between the output of the D-type flip-flop circuit and the transmission line [column 7 line 58 to column 8 line 19].

As to claim 24, Miyazaki et al discloses that a value of the same current secret key on the transmission line is set to zero by default by the central processing unit [column 14, lines 5-36]. Miyazaki et al discloses that the random signal generator comprises a logic circuit to transmit the random signal on the transmission line after activation of a control signal by the central processing unit [column 14, lines 5-36].

As to claim 49, Miyazaki et al discloses that the random signal is generated by a random signal generator connected to the transmission line [column 7 line 58 to column 8 line 19].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17, 27, 36 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al U.S. Patent No. 6,714,648 B2 as applied to claims 12, 25, 34 and 42 above, and further in view of Finkelstein U.S. Patent No. 6,014,446.

As to claims 17, 27, 36 and 45, Miyazaki et al does not teach that the shift register performs a polynomial function based upon n most recent values of the random signal.

Finkelstein teaches a shift register that performs a polynomial function based upon the most recent values of the random signal [column 4 line 60 to column 5 line 27].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Miyazaki et al so that the shift register would have performed a polynomial function based upon the most recent values of the random signal.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Miyazaki et al by the teaching of Finkelstein because by using complex polynomials, it makes the encryption functions less vulnerable to attacks [column 2, lines 17-30].

8. Claims 20, 30, 39 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al U.S. Patent No. 6,714,648 B2 as applied to claims 12, 25, 34 and 42 above, and further in view of Smyth et al U.S. Patent No. 6,058,481.

As to claims 20, 30, 39 and 48, Miyazaki et al teaches a peripheral access control circuit connected to the central processing unit, as discussed above.

Miyazaki et al does not teach that the at least one peripheral device generates the encryption enabling signal based upon an address of the at least at least one peripheral device.

Smyth et al teaches a peripheral device that generates an encryption enabling signal based upon an address of the at least at least one peripheral device [column 3, lines 32-62].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Miyazaki et al so that a peripheral device would have generated a encryption enabling signal based upon an address of the at least at least one peripheral device.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Miyazaki et al by the teaching of Smyth et al because it

Art Unit: 2131

provides a high degree of security to prevent unauthorized access to files and ensures that a minimum level of encryption is needed [column 2, lines 13-22].

Conclusion

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K. Moorthy whose telephone number is 571-272-3793. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2131

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aravind K Moorthy *AM*
August 19, 2005

cel
Primary Examiner
AU 2131
8/20/05